

REMARKS

Claims 1-2 and 6-7 have been amended. Claims 3-5 and 8 have been canceled without prejudice or disclaimer. New claims 9-10 are presented for examination. The applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claim 1-2 and 6-7 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Publication No. 2003/0161615 to Tsumagari *et al.* (hereafter: "Tsumagari"). For the reasons discussed below, claims 1-2 and 6-7, as amended, should be in condition for allowance.

Before discussing the above amendments and the cited reference, the applicants will briefly discuss the background of the present application. When the software of the playback apparatus and various applications run in one apparatus, problems can occur such as a deadlock when multiple applications try to use the same resource or strain on memory capacity when activated applications continuing to run without being terminated. Such problems can lead to instability of the operations of the apparatus.

In view of the above problems, as well as other concerns, the playback apparatus according to various exemplary embodiments controls the activation and termination of an application by defining a unit of title as a lifecycle, where the title is in a hierarchical structure having a top menu title as a root. The life cycle of an application is, for example, a period of time in which the used application is read into the work memory, and is executable by a virtual machine.

Independent claims 1 and 6-7 were amended to recite exemplary features associated with the novel embodiment in which the playback apparatus performs title playback and application

execution with a recording medium, which has stored thereon *inter alia* an index table, operation mode objects, playlists, and applications. Each of the applications is a Java language program in which a life cycle is managed for each title. The index table shows a correspondence between a plurality of titles that are selectable on the recording medium and the plurality of operation mode objects (see Index Table in Fig. 29, pgs. 48 and 50). Each of the plurality of operation mode objects specifies a control procedure in a second mode in which the playback apparatus operates on an application base (see pgs. 13-15, 20. Example, first mode MOVIE mode and second mode BD-J mode), and includes (i) an application management table showing an application whose life cycle is a title corresponding to each of the plurality of operation mode objects (see pg. 20, lines 3-25) and (ii) a playlist table showing a playlist to be played back (see Fig. 52B and pg. 79, lines 8-16).

The playback apparatus includes a module manager operable to select a title from among the titles that are shown in the index table. When the module manager has selected the title, the virtual machine unit starts executing an application whose life cycle is the selected title (see pg. 39, lines 2-18), and the playback control engine unit starts, without waiting for instructions from the applications, playback of a playlist that is specified by a playlist table included in one of the operation mode objects corresponding to the selected title shown in the index table (see pg. 81, lines 9-19).

By including an application management table within the operation mode objects and the index table showing correspondence between the operation mode objects and the titles, when the playback apparatus switches between titles, a switch of operation mode objects can also be made accordingly, and the application management table stored in this operation mode object can be used to activate an application and terminate a running application.

Further, by managing titles as life cycles, it becomes possible to manage consumption of memory resources by the applications with use of the units of playback that are titles as boundaries in the management.

Further, the application management tables exist in the operation mode objects. An operation mode object instructs operations for each title in a control procedure of a second of two operation modes, namely a first mode and a second mode. The first mode is an operation mode in which the playback apparatus operates in a command base. For example, the first mode can correspond to an operation mode in which operations are performed based on navigation commands in a program chain, such as in a DVD playback apparatus. The second mode can be an operation mode in which the playback apparatus operates based on a program in a Java language, such as an operation mode in which operations are performed based mainly on a Java virtual machine. Accordingly, even when the operation mode objects are provided for an apparatus that operates based on commands, the apparatus can switch modes and control the activation and termination of applications on a title to title basis. Therefore, the application signaling can also be executed in a command-based apparatus.

Tsumagari describes a DVD video player for playing back DVD video as well as enhanced navigation (ENAV) contents 30. The player includes an ENAV engine 300 which includes an ENAV interpreter 330 for interpreting control information in the ENAV contents 30.

Firstly, Tsumagari fails to disclose that the ENAV contents 30 include a plurality of operation mode objects, each of which specifies a control procedure...*and includes an application management table showing an application whose life cycle is a title* corresponding to each of the plurality of operation mode objects as called for in claims 1, 6 and 7. Rather, Tsumagari describes a different manner for specifying the content to be activated. According to

the description in paragraphs [0079]-[0081], practical methods for specifying the ENAV contents 30 in the DVD-Video includes two methods, namely (i) a method of providing a select button of the ENAV contents 30 to a DVD menu and allowing the user to select the ENAV contents button by operating keys of a remote controller, and (ii) a method of automatically accessing the ENAV contents 30 based on internal commands of the DVD-Video player. Regardless of which activation method is selected, at best, the ENAV contents 300 are activated based upon commands, and not by an application management table showing an application whose life cycle is a title corresponding to each of the plurality of operation mode objects.

Secondly, Tsumagari also fails to disclose that *when the module manager has selected the title, the virtual machine unit starts executing* an application whose life cycle is the selected title as called for in amended claims 1, 6 and 7. Rather, Tsumagari describes execution of the ENAV contents 30 being triggered by the menu call in the DVD-Video title. Particularly, as described in paragraphs [0154]-[0155], ENAV interpreter 330 fetches the ENAV contents 30 (step ST20) and waits for an event (step ST22, NO in step ST24). If the “DVD event signal indicating menu call” is output in step ST16 (YES in step ST24), ENAV interpreter 330 checks if the fetched ENAV contents 30 include ENAV menu contents. If the fetched ENAV contents 30 include the ENAV menu contents (YES in step ST26), the ENAV menu contents in the fetched ENAV contents are executed (step ST32 in FIG. 6). Therefore, the control is not performed in a manner that, when a title corresponding to an operation mode object is selected as a current title, an application managed by the operation mode object is activated with the title being a life cycle.

Thirdly, Tsumagari fails to disclose that the content includes operation mode objects, each of which specifies a control procedure *in a second mode in which the playback apparatus*

operates on an application base. Particularly, there are three operation modes, namely (i) a mode based on video contents (full video mode in FIG. 7), (ii) a mode based on ENAV contents (full ENAV mode in FIG. 8), and (iii) a mode based on both of the video contents and the ENAV contents (mixed frame mode (mixed mode) in FIG. 11). However, as described above, the playback apparatus of Tsumagari starts playback of the ENAV contents 30 after starting playback of the DVD-Video title, regardless of the current operation mode of the playback apparatus. The ENAV contents 30 are activated when the user has made a menu call operation during title playback, and are thus activated based on the premise that the title playback is being executed.

Thus, at best, the ENAV contents 300 merely describe operation mode objects of a first mode in which the playback apparatus operates on a command base. However, Tsumagari fails to disclose an operation mode in which the playback apparatus operates on the application base without relying on the first mode.

Although, as correctly noted by the examiner, the ENAV interpreter (330) checks if the ENAV playback information which is being executed includes a script of ENAV content “m+1”, the ENAV contents 30 are activated by commands, and not by an application management table in the operation mode object corresponding to the title, in the index table as called for in amended claims 1, 6 and 7.

Therefore, because Tsumagari fails to disclose: (1) that the content includes operation mode objects, each of which specifies a control procedure in a second mode that is second of two modes, and includes an application management table showing an application whose life cycle is a title corresponding to each of the plurality of operation mode objects; (2) when the module manager has selected the title, the virtual machine unit starts executing an application whose life

cycle is the selected title; and (3) the content includes operation mode objects which each specifies a control procedure in a second mode in which the playback apparatus operates on an application base, it is respectfully requested that the rejection of claims 1, 6 and 7, as well as dependent claim 2, under 35 U.S.C. 102(e), be withdrawn.

New claims 8-9 are presented for examination. Support for new claims 8-9, as well as the amendment to claim 2, can be found on, for example, pg. 82, lines 3-19. As described here, even when a game application is forcibly terminated in midstream, playback of a default PL, which is a playlist to start playback that is indicated in the playlist management table, is continued. New claims 8-9 depend from claims 6 and 7. Therefore, new claims 8-9 should also be in condition for allowance for at least the above-mentioned reasons with respect to claims 6 and 7.

In view of the foregoing, the applicants submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

Respectfully submitted,

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